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(71) Applicant: EATON CORPORATION
Cleveland, Ohio 44114-2583 (US)

(72) Inventors:

• Schlosser, Kevin Francis
Auburn, Indiana 46706 (US)

- Gochenour, Dan Vern
Auburn, Indiana 46706 (US)
- Batterton, Gregory W.
Auburn, Indiana 46706 (US)
- Szadkowski, Andrzej Piotr
Cleveland, Ohio 44114 (US)
- Bassett, Michael Lee
Auburn, Indiana 46707 (US)
- Uthoff, Loren Herbert, Jr.
Northville, Michigan 48167 (US)

(74) Representative:
Patentanwälte Rüger, Barthelt & Abel
Postfach 10 04 61
73704 Esslingen a.N. (DE)

(54) Clutch disc assembly with reinforcing plate welded thereto

(57) A clutch driven disc assembly (10) includes a hub (14), an annular spring plate (26), an annular disc (30), a plurality of drive springs (18), and a disc assembly (16). The hub has an axis of rotation (12). The annular spring plate rotatably is fixed to the hub. The annular disc assembly is mounted concentric with the axis of rotation relative to the spring plate. The plurality of drive springs is operably disposed between the spring plate and the disc assembly. The disc assembly has a reinforcing plate (31) with spring pockets (33) which receive the drive springs. The reinforcing plate has oppositely facing faces. The annular disc has a friction element (34) fixed thereto and also has a plurality of attachment apertures (42) passing therethrough. The weld bead (44) is disposed in each of the attachment apertures and fixes the annular disc to one of the reinforcing plate faces.

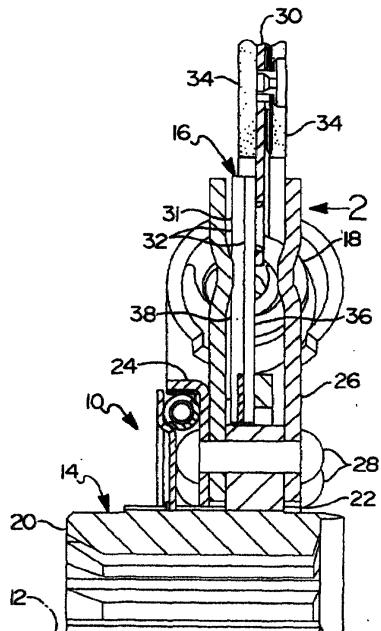
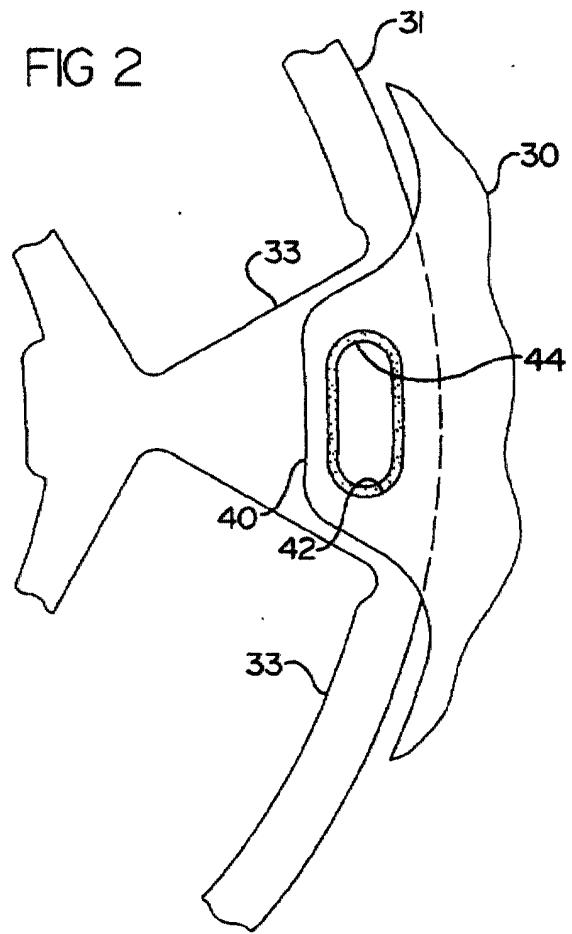


FIG 1

FIG 2





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EUROPEAN SEARCH REPORT

Application Number
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DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int.Cl.7)						
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim							
A	US 5 419 422 A (SCHRAUT ALFRED) 30 May 1995 (1995-05-30) * abstract; figures * * column 4, line 49 – column 5, line 38 * ---	1,2,5,6, 9	F16D13/68 F16F15/12						
A	GB 2 165 323 A (FICHTEL & SACHS AG) 9 April 1986 (1986-04-09) * abstract; figures 6,7 * * page 2, line 39 – line 72 * ---	1,2,5,6, 9							
A	DE 39 08 348 A (FICHTEL & SACHS AG) 20 September 1990 (1990-09-20) * figure 1 * ---	1,5							
A	GB 2 044 864 A (FERODO LTD;AUTOMOTIVE PROD CO LTD) 22 October 1980 (1980-10-22) * figure 1 * -----	3,7							
			TECHNICAL FIELDS SEARCHED (Int.Cl.7) F16D F16F						
<p>The present search report has been drawn up for all claims</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Place of search</td> <td style="width: 33%;">Date of completion of the search</td> <td style="width: 34%;">Examiner</td> </tr> <tr> <td>BERLIN</td> <td>19 November 2001</td> <td>Gertig, I</td> </tr> </table> <p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>				Place of search	Date of completion of the search	Examiner	BERLIN	19 November 2001	Gertig, I
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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 00 10 8497

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19-11-2001

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
US 5419422	A	30-05-1995	BR DE DE EP ES	9304320 A 4335674 A1 59301210 D1 0598242 A1 2084432 T3	03-05-1994 28-04-1994 01-02-1996 25-05-1994 01-05-1996
GB 2165323	A	09-04-1986	DE BR FR IT	3436583 A1 8504910 A 2571457 A1 1182590 B	10-04-1986 22-07-1986 11-04-1986 05-10-1987
DE 3908348	A	20-09-1990	DE	3908348 A1	20-09-1990
GB 2044864	A	22-10-1980	DE FR IT	3007225 A1 2450977 A1 1129412 B	18-09-1980 03-10-1980 04-06-1986